

USAF Scientific Advisory Board

Quick Look Study

FY 2005

Persistence at “Near Space” Altitudes

Terms of Reference

Background

Combat commands increasingly have requirements for accurate, temporally persistent, real-time intelligence, surveillance, and reconnaissance (ISR) data. Such ISR data are critical for protection of convoys, tracking friendly forces, assessing battle damage, and connecting beyond-line-of-sight units. While the use of unmanned aerial vehicles (UAVs) has greatly assisted military field commanders by providing high resolution imagery over wide geographic areas, current UAV platforms have limitations in altitude that make them vulnerable to attack by surface-to-air missiles (SAMs) and other adversary weapons. While satellite imagery also provides useful data, satellite operations preclude consistent, persistent focus on specific geographical locations over long periods of time. The ability to take advantage of sensing from the “near space” region in the upper atmosphere (from altitudes between 65,000 ft and 300,000 ft) will enable the Air Force to more accurately and effectively acquire ISR data and transmit the information to battlefield commanders. Such persistence requires the identification, development, and integration of carrier platforms with the relevant payloads, supporting systems and logistics.

Study Products

Briefing to SAF/OS & AF/CC in August 2005. Publish report in October 2005.

Charter

The study will address the following issues relevant to systems operating in the “near space” region, and will provide appropriate recommendations for potential near term, mid term, and far term solutions:

- Assess the specific shortfalls that current systems and platforms pose for sensing, acquiring, analyzing, and delivering data to combat commands
- Assess the status of ongoing governmental studies and technology demonstrations relevant to operations at “near space” altitudes.
- Assess the potential (benefits and disadvantages) of alternative carrier platforms for operation in “near space”, including autonomous lighter-than-air vehicles, balloons, advanced aerobodies, and stealth aircraft.
- Assess integration of alternative platforms with relevant payloads and logistics, including challenges in communications, bandwidth, and support.
- Define near-term, mid-term, and far-term paths to accelerate “near space” persistent sensing to aid the warfighter.